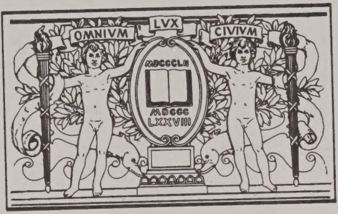

OMNIVM
LVX
CIVIVM
MDCCCLII
MDCCC
LXXVIII

GROWTH TO THE YEAR 2000: BOSTON HOUSEHOLD PROJECTIONS

Margaret C. O'Brien
Rolf Goetze

Boston Redevelopment Authority
Policy Development and Research Department

April, 1989

Raymond L. Flynn, Mayor
City of Boston

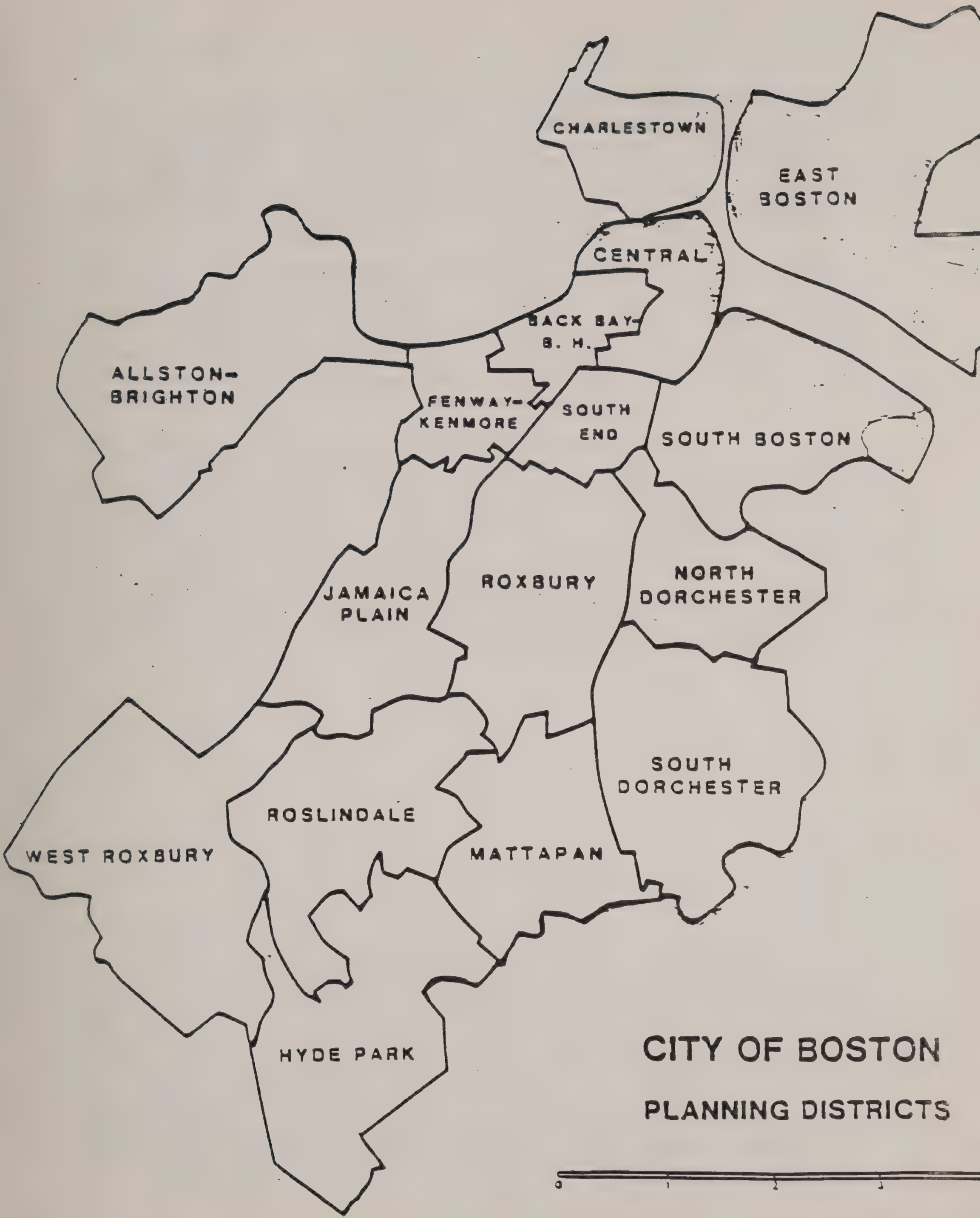
Stephen Coyle, Director
Boston Redevelopment Authority

Alexander Ganz, Assistant Director
Policy Deveopment and Research Department

TABLE OF CONTENTS

Tables

TABLE OF CONTENTS (CONTINUED)



CITY OF BOSTON

PLANNING DISTRICTS

BOSTON REDEVELOPMENT AUTHORITY

INTRODUCTION

As part of the B.R.A.'s study of Growth to the Year 2000, the number of households in Boston is projected to the year 2000. These household projections link the number of projected residents with the number of housing units which will house them. The three series of household projections in this paper -- High, Middle and Low -- are derived by using recently completed, population projections and housing projections.[1]

Each of the three series represents a specific, plausible combination of assumptions with regard to growth in housing units, vacancy and household types, in order to provide the user with internally consistent sets of population, housing, and household projections within the framework of the High, Middle, or Low series. The three series are available for sub-areas of Boston as well as for the City as a whole.

The three series provide a useful framework for planning by indicating a range of reasonable projections for the year 2000. Each of the series is based on a different set of assumptions about Boston's future. The user may compare the underlying assumptions as well as the projected outcomes to choose that one which appears most appropriate. Moreover, similar comparisons may be made for household types and for neighborhoods. This unusually detailed set of projections are germane to planning for housing, social services, municipal services, the development and preservation of neighborhoods, and municipal budgeting.

---

[1] The household projections fit with the three earlier B.R.A. series of population projections and the two series of housing projections. See Margaret O'Brien and Deborah Oriola, "Growth to the Year 2000 in the City of Boston; Population Projections," Boston Redevelopment Authority, Policy Development and Research Department, August, 1988, and Rolf Goetze and Mary Bourguignon, "Boston's Housing Stock, 1970-2000," Boston Redevelopment Authority, Policy Development and Research Department, January, 1988. An additional third housing projection was created for the Low series.

SUMMARY

This paper presents three sets of household projections for 1990 and 2000 based on three different sets of assumptions. Households, that is, occupied housing units, are closely related to both the projected number of housing units and to the projected population of Boston.[2]

The number of households is projected to grow from 218,500 in 1980 to over 250,000 by the year 2000. The range for the year 2000 is from 251,600 in the Low Series, to 261,900 in the Middle Series, to 268,100 in the High Series, shown in Table 1. These household totals for the year 2000 indicate increases of 33,100, 43,400, and 49,600 households. These represent growth rates of 15, 20, and 23 percent, respectively, over the twenty-year period.

At the same time, housing units and population will be increasing also. Housing units are expected to grow from their 1980 base of 241,300 to year 2000 projections of 275,000 in the Low Series, 285,900 in the Middle Series, and 293,100 in the High Series. These projections include 33,700 new units in the Low Series, a growth of 14 percent, For the Middle Series, growth of 44,600 new units represents an increase of 18 percent. In the High Series, 51,800 additional units are anticipated amounting to a 21 percent growth in housing units.

In addition, the numbers of each of the six types of households will grow, as shown in Table 3. However, the rates of growth for household types vary among the three series. In the Low and Middle Series, other families and single parent families have a higher growth rate than other household types. In the High Series, growth rates are higher for roommate households, for married couples with children, and for other families without minor children. An increased share of Boston's households will be in those household types with higher growth rates, as shown in Table 2.

The projections show growth in the number of households in all sub-areas of the City. See Table 6. The distribution of households among the sub-areas within Boston will change only slightly, with the growth in households in the Core and Mixed sub-areas slightly exceeding that for the Suburban neighborhoods.

The projections are based on a variation of the housing unit method which combines the number of expected households, that is, the number of occupied housing units, and the expected average number of persons in each unit to project population. The

---

[2] In 1980, 93 percent of Boston's total population lived in households. The remaining 7 percent lived in group quarters facilities such as dormitories, fraternities, convents, and long-term care facilities.

methodology used here differs in that it takes as given the projected numbers of housing units and total population and works from these to estimate the number of households which house the majority of the population. Combining vacancy rates with housing units, on the one hand, and projected household sizes by type and projections of the household population, obtained by subtracting the projected group quarters population from the total population, on the other hand, provides household projections that link and are consistent with both population and housing unit projections. In practice, information for each of six household types is combined. The results are summed to provide the household population projections. These results are slightly adjusted to the housing and population totals for the City.

FINDINGS

City of Boston. Table 1 shows the projected number of housing units, households, and population for Boston under each of the three series. All three series show a considerable increase in housing units from 241.3 thousand in 1980 to between 258.9 for the Low and 265.1 for the High Series in 1990. By the year 2000, the range of the number of housing units widens with 275.0 thousand units projected in the Low and 293.1 thousand units in the High Series.

The gross vacancy rate, which includes as vacant units those that are boarded up and in need of substantial repairs as well as those that are temporarily unoccupied, is projected to decline from 9.5 percent in 1980 to 8 or so percent by 1990 and then edge up again between 1990 and 2000 as the projected increase in units eases the currently critical housing shortage. The number of households, occupied housing units, is projected to grow between 15 and 23 percent in the years 1980 to 2000, to 251.6 thousand in the Low and 268.1 in the High Series.

Population growth shows even greater variability among the three series. The household population will grow between 6 and 24 percent during the same period, from 523.5 to 556.4 in the Low and 648.2 in the High Series. The increased variability of population growth compared to the growth in households is due to the assumptions about the average number of persons per household. In the High Series, this average grows slightly while household size declines at different rates for the Middle and Low Series. The differing household size expectations have an important impact on the resulting household population.

The population in group quarters also shows different growth patterns in the three series. The High Series holds constant the group quarters population estimated to be 49,500 in 1985 by the State Census Commission. The Middle Series assumes the group quarters population climbs toward that number. The Low Series assumes that some of the apparent growth in group quarters population has already been captured as part of the household population. In the Low Series, both the number of housing units and the group quarters population were reduced somewhat to compensate for possible inadvertent double counting. (See the Final Assumptions section of Appendix A.)

The last column of Table 1 shows the resulting growth in total population during the 1980 to 2000 period. The population is expected to grow from 563.0 thousand in 1980 to a range between 598.4 thousand in the Low Series and 697.7 thousand in the High Series by the year 2000. The number of persons per household accounted for 54.5 percent of this 99,300 range. The number of housing units accounted for 38.0 percent, and the difference in group quarters populations was the remainder.

Clearly, persons per household is the variable to which the

Table 1. Projections of Population and Households for City of Boston, 1990 and 2000, with Actual Numbers for 1980 (housing and population in thousands)

Year, Series	Housing Units	Gross Vacancy Rate (percent)	Number of Households	Average Number Persons/ Household	Household Population	Persons in Group Quarters	Total Population
1980 Actual	241.3	9.5	218.5	2.40	523.5	39.5	563.0
1990 High	265.1	8.0	243.8	2.42	590.4	49.5	639.9
2000 High	293.1	8.5	268.1	2.42	648.2	49.5	697.7
1990 Middle	262.7	8.2	241.2	2.30	553.6	47.5	601.1
2000 Middle	285.9	8.4	261.9	2.27	594.7	49.5	644.2
1990 Low	258.9	8.4	237.2	2.27	537.4	42.0	579.4
2000 Low	275.0	8.5	251.6	2.21	556.4	42.0	598.4

Sources: U.S. Census of Population and Housing, 1980. Housing and household projections based on BRA reports: 1985 Household Survey and on Goetze and Bourguignon. Population projections based on O'Brien and Oriola.

Table 2: Proportional Distribution of Households by Type, 1990 and 2000, with Actual Household Distribution for 1980 (in percent)

		Household Type					
Series	Total	Married Couple without Children	Married Couple with Children	Other Family without Children	Single Parent with Children	Live Alone	Live with Roommate
1980 Actual	100.0	18.2	15.4	8.4	11.3	36.8	9.7
1990 Low	100.0	18.2	15.2	8.8	11.6	37.0	9.0
2000 Low	100.0	18.2	14.9	9.0	11.9	37.0	8.8
1990 Middle	100.0	18.1	15.4	8.8	11.2	36.0	10.4
2000 Middle	100.0	18.1	15.4	9.0	11.7	36.0	9.6
1990 High	100.0	17.9	17.2	8.8	10.9	34.0	11.1
2000 High	100.0	17.9	17.0	8.8	10.9	34.0	11.3

Note: Children are minor children.
Sources: Housing and household projections based on 1985 Household Survey.

projections are most sensitive. It should be noted here that the average number of persons per household for each series is the weighted average of the average number of persons per household for each household type rather than a number decided by fiat.[3] Almost two-thirds of the variability among the series in the citywide average results from the unique distribution of households by type in each series noted in Table 2 and a little over one-third from the variation in household size by type among the series.

Citywide distributions by household type. The distributions of household types for the household population in the City can be seen in Table 2. For this study, six household types were used: married couple without minor children, married couple with minor children, other family without minor children, single parent with minor children, persons living alone, and roommate households.[4]

The first row of numbers indicates the proportional distribution of household types as found in the 1985 Household Survey. Below this are the projected distributions for the three series in 1990 and 2000. The proportions shown indicate the expected change from 1985 in the distribution of households by type.

The Low Series projects that a declining proportion of households will be married couples with children and roommate households, while rising proportions will be other families and single parent families. Married couples without children and single person households will remain constant proportions of the total. This reflects a continuation of trends seen in Boston prior to 1980 and nationwide up to the present time.

The Middle Series foresees a rising proportion of households being other family and single parent households while roommate households decline and the remaining family types pretty much retain their 1980 share of households. This might be considered a status quo continuation of the composition revealed by the 1985 Household Survey.

The High Series, on the other hand, projects a rise from 1980 in

---

[3] The average numbers of persons for each of the six household types are shown in the second bank of Table 3. Weighting them by the number of households of that type, shown in the top bank of Table 3, results in the average persons per household for all household types shown in the left column of the second bank of the table.

[4] See General Methodology and Definitions for a more detailed description of the six household types comprising the City's household population and how the number of persons in each type for sub-areas of the city was derived from the 1985 Household Survey.

married couples with children, other families, and roommate households, while married couples without children, single parent families, and those living alone are expected to decline in importance. With more young adults committed to childrearing, this would represent a reversal of recent trends in household composition.

Table 3 traces the changes in household population produced by these variations. At the top, the number of households resulting from the distribution in Table 2 are shown. These are then multiplied by the average number of persons per household type in that year in order to arrive at the total household population at the bottom of Table 3.

The number of persons per household, shown in the second bank of Table 3, varies considerably by household type. They range from 1.0 for persons living alone to as high as 4.4 for married couples with children in the High Series. Single parent families tend to have somewhat over 3 persons per household, while the remaining types tend to have about 2.5 persons.

The distribution of household types, as well as their respective sizes, are both important determinants of the resulting household population. For example, every additional unit occupied by a married couple with children household adds four persons, while a new unit occupied by a single person living alone adds only one.

<u>Distributions by neighborhoods.</u> The allocation of the City of Boston totals to both Neighborhood Planning Districts and five sub-areas which are combinations of neighborhoods are shown in Tables 4 through 7, which allow comparison of the implications for the neighborhoods of the assumptions of the three series.[5] Tables 4 and 5 show the projections for 1990 and Tables 6 and 7 show the patterns for the year 2000.

---

[5] The number of housing units, vacancy rates, and, therefore, households and persons per houshold are distributed to the neighborhoods as a fixed proportion of the City total, following that of the 1985 Household Survey. Therefore, the numbers do not reveal any shift among the neighborhoods in shares of types of households. However, the differences in numbers of households and household size by neighborhoods, even with fixed proportions, can be noted.

The simplifying assumption of neighborhoods retaining a fixed proportion of the City total of household types results in the discrepancies among the total number of households by neighborhoods found in Tables 8 and 9. This method, used to create Tables 8 and 9, ensures that 100 percent of each household type within the City is assigned to a neighborhood, but the resulting proportions for each household type only approximately sum to 100 percent of the neighborhood households found in Tables 8 and 9. For most neighborhoods, the sum is only minimally different from 100 percent.

Table 3: Projections of Households, Persons per Household, and Household Population by Type, for City of Boston 1990 and 2000, with Actual Households for 1980
(households and population in thousands)

		Household Type					
Year, Series	Total	Married Couple without Children	Married Couple with Children	Other Family without Children	Single Parent with Children	Live Alone	Live with Roommate
Number of Households							
1980 Actual	218.5	39.7	33.6	18.3	24.7	80.3	21.2
1990 Low	237.2	43.2	36.0	20.9	27.5	87.7	21.4
2000 Low	251.6	45.8	37.5	22.6	30.0	93.1	22.1
1990 Middle	241.2	43.6	37.1	21.2	26.9	86.8	25.0
2000 Middle	261.9	47.4	40.3	23.6	30.6	94.3	25.2
1990 High	243.8	43.6	41.9	21.4	26.5	82.9	27.0
2000 High	268.1	48.0	45.6	23.5	29.1	91.2	30.2
Persons per Household							
1990 Low	2.27	2.4	4.2	2.6	3.2	1.0	2.4
2000 Low	2.21	2.3	4.1	2.6	3.0	1.0	2.4
1990 Middle	2.30	2.4	4.2	2.6	3.3	1.0	2.4
2000 Middle	2.27	2.3	4.2	2.6	3.2	1.0	2.4
1990 High	2.42	2.5	4.4	2.6	3.4	1.0	2.5
2000 High	2.42	2.5	4.4	2.6	3.4	1.0	2.5
Household Population							
1990 Low	537.4	103.6	151.4	54.8	87.9	87.7	51.4
2000 Low	556.4	105.3	153.7	59.5	90.1	93.1	53.9
1990 Middle	553.6	104.8	156.0	55.8	88.9	86.8	60.9
2000 Middle	594.7	109.0	169.4	61.9	97.9	94.3	61.5
1990 High	590.4	110.3	184.2	56.1	89.3	82.9	67.0
2000 High	648.2	121.2	200.2	61.7	98.2	91.2	75.0

Sources: U.S. Census of Population and Housing, 1980.
Housing and household projections based on 1985 Household Survey.

Table 4: Number of Housing Units, Households, and Average Persons per Household, by Neighborhood Planning Districts and Areas, 1990
(numbers of units and households in thousands)

Area	Total Housing Units			Total Number of Households			Average Number of Persons/Household		
	Low	Mid	High	Low	Mid	High	Low	Mid	High
City Total	258.9	262.7	265.1	237.2	241.2	243.8	2.27	2.30	2.42
Ethnic									
East Boston	15.2	15.5	15.6	14.0	14.3	14.4	2.14	2.17	2.29
Charlestown	7.9	8.0	8.1	6.8	6.9	7.0	2.11	2.14	2.26
South Boston	15.1	15.4	15.5	13.6	13.8	14.0	2.19	2.22	2.34
Core									
Central	14.0	14.2	14.4	13.3	13.6	13.7	1.72	1.74	1.83
Back Bay-Beacon Hill	19.1	19.4	19.6	16.2	16.4	16.6	1.61	1.63	1.72
South End	15.0	15.3	15.4	14.1	14.4	14.5	1.67	1.69	1.78
Fenway-Kenmore	13.7	13.9	14.1	13.3	13.5	13.7	1.82	1.85	1.95
Mixed									
Allston-Brighton	31.8	32.3	32.6	31.0	31.5	31.8	1.98	2.01	2.12
Jamaica Plain	19.0	19.3	19.5	16.8	17.1	17.3	2.43	2.46	2.59
Minority									
Roxbury	24.4	24.8	25.0	21.4	21.8	22.0	2.56	2.59	2.74
North Dorchester	10.7	10.9	11.0	9.5	9.7	9.8	2.62	2.66	2.80
Suburban									
South Dorchester	23.0	23.3	23.6	20.4	20.8	21.0	2.69	2.72	2.87
Mattapan	13.7	13.9	14.0	12.1	12.3	12.4	2.98	3.02	3.18
Roslindale	12.4	12.5	12.7	11.5	11.7	11.8	2.75	2.79	2.94
West Roxbury	12.3	12.5	12.6	12.1	12.3	12.4	2.59	2.63	2.77
Hyde Park	11.5	11.6	11.8	10.9	11.1	11.2	2.86	2.89	3.05
Harbor Islands	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00
Ethnic	38.2	38.8	39.2	34.4	35.0	35.4	2.16	2.18	2.30
Core	61.9	62.8	63.4	56.9	57.9	58.6	1.70	1.72	1.82
Mixed	50.8	51.5	52.0	47.8	48.6	49.1	2.14	2.17	2.29
Minority	35.1	35.6	36.0	31.0	31.5	31.8	2.58	2.61	2.76
Suburban	72.8	73.9	74.6	67.0	68.2	68.9	2.76	2.80	2.95

Source: U.S. Census of Population and Housing, 1980.
Housing and household projections based on 1985 Household Survey and Goetze and Bourguignon.

Table 5: Number of Persons in Households, in Group Quarters, and Total Population, by Neighborhood Planning Districts and Areas, 1990
(numbers in thousands)

Area	Household Population			Total No. of Persons in Group Quarters			Total Population		
	Low	Mid	High	Low	Mid	High	Low	Mid	High
City Total	537.4	553.6	590.4	42.0	47.5	49.5	579.4	601.1	639.9
Ethnic									
East Boston	29.9	30.7	32.9	0.5	0.6	0.6	30.4	31.6	33.6
Charlestown	14.2	14.7	15.7	0.2	0.2	0.2	14.5	15.0	16.0
South Boston	29.7	30.6	32.6	0.9	1.0	1.0	30.5	31.7	33.7
Core									
Central	22.6	23.3	25.0	2.2	2.5	2.6	25.1	26.0	27.7
Back Bay-Beacon Hill	25.8	26.8	28.4	5.7	6.5	6.7	31.9	33.1	35.3
South End	23.4	24.3	25.7	1.9	2.2	2.3	25.5	26.4	28.1
Fenway-Kenmore	24.1	25.0	26.6	13.9	15.7	16.4	39.0	40.5	43.1
Mixed									
Allston-Brighton	61.7	63.8	67.8	6.0	6.8	7.1	67.4	69.9	74.4
Jamaica Plain	40.6	41.9	44.7	2.6	2.9	3.0	43.3	44.9	47.8
Minority									
Roxbury	54.5	56.4	60.0	1.4	1.5	1.6	55.9	58.0	61.7
North Dorchester	25.0	25.8	27.4	0.5	0.5	0.6	25.4	26.3	28.0
Suburban									
South Dorchester	55.1	56.6	60.1	1.3	1.5	1.5	55.9	58.0	61.7
Mattapan	36.0	36.9	39.3	1.1	1.2	1.3	36.8	38.2	40.7
Roslindale	31.5	32.3	34.7	0.9	1.0	1.1	32.4	33.7	35.8
West Roxbury	31.5	32.3	34.4	0.8	0.8	0.9	32.0	33.1	35.3
Hyde Park	31.0	31.8	34.2	0.4	0.5	0.5	31.4	32.6	34.7
Harbor Islands				1.8	2.1	2.2	2.0	2.0	2.2
Ethnic	73.9	76.0	81.3	1.6	1.8	1.9	75.4	78.2	83.3
Core	95.9	99.4	105.8	23.7	26.8	28.0	121.5	126.1	134.2
Mixed	102.3	105.7	112.5	8.6	9.7	10.1	110.7	114.3	122.2
Minority	79.6	82.1	87.4	1.8	2.1	2.2	81.3	84.3	89.7
Suburban	185.2	189.9	202.8	4.4	5.0	5.2	188.6	195.6	208.2

Source: U.S. Census of Population and Housing, 1980.
Population projections based on 1985 Household Survey, Goetze and Bourguignon, and O'Brien and Oriola.

Table 6: Number of Housing Units, Households, and Average Persons per Household,
by Neighborhood Planning Districts and Areas, 2000
(numbers of units and households in thousands)

Area	Total Housing Units			Total Number of Households			Average Number of Persons/Household		
	Low	Mid	High	Low	Mid	High	Low	Mid	High
City Total	275.0	285.9	293.1	251.6	261.9	268.1	2.21	2.27	2.42
Ethnic									
East Boston	16.2	16.8	17.2	14.9	15.5	15.9	2.09	2.15	2.29
Charlestown	8.4	8.7	8.9	7.2	7.5	7.7	2.06	2.12	2.25
South Boston	16.1	16.7	17.1	14.4	15.0	15.4	2.14	2.20	2.34
Core									
Central	14.9	15.5	15.9	14.2	14.7	15.1	1.67	1.72	1.83
Back Bay-Beacon Hill	20.3	21.1	21.7	17.1	17.8	18.3	1.57	1.61	1.72
South End	16.0	16.6	17.0	15.0	15.6	16.0	1.63	1.67	1.78
Fenway-Kenmore	14.6	15.2	15.5	14.1	14.7	15.1	1.78	1.83	1.95
Mixed									
Allston-Brighton	33.8	35.1	36.0	32.9	34.2	35.0	1.93	1.99	2.11
Jamaica Plain	20.2	21.0	21.5	17.9	18.6	19.0	2.37	2.43	2.59
Minority									
Roxbury	25.9	27.0	27.6	22.7	23.6	24.2	2.50	2.57	2.73
North Dorchester	11.4	11.8	12.1	10.1	10.5	10.8	2.56	2.63	2.80
Suburban									
South Dorchester	24.4	25.4	26.0	21.7	22.6	23.1	2.62	2.69	2.87
Mattapan	14.5	15.1	15.5	12.8	13.3	13.6	2.91	2.98	3.18
Roslindale	13.1	13.6	14.0	12.2	12.7	13.0	2.68	2.76	2.93
West Roxbury	13.1	13.6	13.9	12.8	13.3	13.7	2.53	2.60	2.77
Hyde Park	12.2	12.7	13.0	11.6	12.1	12.4	2.79	2.86	3.05
Harbor Islands									
Ethnic	40.6	42.2	43.3	36.5	38.0	38.9	2.10	2.16	2.30
Core	65.8	68.4	70.1	60.4	62.9	64.4	1.66	1.70	1.81
Mixed	54.0	56.1	57.5	50.7	52.8	54.0	2.09	2.14	2.29
Minority	37.3	38.8	39.7	32.8	34.2	35.0	2.52	2.58	2.75
Suburban	77.3	80.4	82.4	71.1	74.0	75.8	2.69	2.77	2.95

Source: U.S. Census of Population and Housing, 1980.
Housing and household projections based on 1985 Household Survey
and Goetze and Bourguignon.

Table 7: Number of Persons in Households, in Group Quarters, and Total Population, by Neighborhood Planning Districts and Areas, 2000
(numbers in thousands)

Area	Total Household Population			Total No. of Persons in Group Quarters			Total Population		
	Low	Mid	High	Low	Mid	High	Low	Mid	High
City Total	556.4	594.7	648.2	42.0	49.5	49.5	598.4	644.2	697.7
Ethnic									
East Boston	30.9	33.1	36.1	0.5	0.6	0.6	31.4	33.8	36.6
Charlestown	14.7	15.7	17.3	0.2	0.2	0.2	14.9	16.1	17.4
South Boston	30.6	32.8	35.8	0.9	1.0	1.0	31.5	33.9	36.8
Core									
Central	23.4	25.0	27.5	2.2	2.6	2.6	25.9	27.9	30.2
Back Bay-Beacon Hill	27.2	28.9	31.3	5.7	6.7	6.7	33.0	35.5	38.5
South End	24.4	26.1	28.3	1.9	2.3	2.3	26.3	28.3	30.7
Fenway-Kenmore	25.3	26.9	29.2	13.9	16.4	16.4	40.3	43.4	47.0
Mixed									
Allston-Brighton	64.7	68.7	74.5	6.0	7.1	7.1	69.6	74.9	81.1
Jamaica Plain	41.9	45.1	49.0	2.6	3.0	3.0	44.7	48.1	52.1
Minority									
Roxbury	55.9	60.3	65.9	1.4	1.6	1.6	57.7	62.1	67.3
North Dorchester	25.9	27.7	30.1	0.5	0.6	0.6	26.2	28.2	30.6
Suburban									
South Dorchester	56.8	60.8	66.0	1.3	1.5	1.5	57.7	62.2	67.3
Mattapan	36.9	39.7	43.1	1.1	1.3	1.3	38.0	40.9	44.3
Roslindale	32.5	34.6	38.1	0.9	1.1	1.1	33.5	36.1	39.1
West Roxbury	32.5	34.5	37.8	0.8	0.9	0.9	33.0	35.5	38.5
Hyde Park	31.9	34.0	37.6	0.4	0.5	0.5	32.5	35.0	37.9
Harbor Islands				1.8	2.2	2.2	2.0	2.2	2.4
Ethnic	76.3	81.6	89.1	1.6	1.9	1.9	77.9	83.8	90.3
Core	100.3	106.9	116.2	23.7	28.0	28.0	125.5	135.1	146.3
Mixed	106.6	113.8	123.5	8.6	10.1	10.1	114.3	123.0	133.3
Minority	81.8	88.0	96.0	1.8	2.2	2.2	83.9	90.4	97.9
Suburban	190.7	203.7	222.5	4.4	5.2	5.2	194.7	209.6	227.0

Source: U.S. Census of Population and Housing, 1980.
Population projections based on 1985 Household Survey, Goetze and Bourguignon, and O'Brien and Oriola.

Table 8: Distribution of Households by Type in 1990, Low, Middle and High Series
(numbers of households in thousands)

Area	Married Couple without children under 18 yrs.			Married Couple with children under 18 yrs.			Other Family without children under 18 yrs.			Single Parent with children under 18 yrs.			Live Alone			Living with Roommate			Total Number of Households		
	Low	Mid	High	Low	Mid	High	Low	Mid	High	Low	Mid	High	Low	Mid	High	Low	Mid	High	Low	Mid	High
City Total	43.2	43.6	43.6	36.0	37.1	41.9	20.9	21.2	21.4	27.5	26.9	26.5	87.7	86.8	82.9	21.4	24.9	27.1	237.2	241.2	243.8
Ethnic																					
East Boston	2.6	2.6	2.6	2.2	2.3	2.6	2.0	2.1	2.1	1.4	1.3	1.3	5.8	5.8	5.5	0.0	0.2	0.4	14.0	14.3	14.4
Charlestown	1.6	1.6	1.6	1.0	1.0	1.2	0.5	0.5	0.5	0.5	0.5	0.5	2.7	2.7	2.6	0.5	0.6	0.6	6.8	6.9	7.0
South Boston	3.2	3.2	3.2	1.8	1.8	2.0	1.1	1.2	1.2	2.2	2.2	2.2	4.8	4.8	4.5	0.5	0.7	0.9	13.6	13.8	14.0
Core																					
Central	3.2	3.2	3.2	1.2	1.2	1.4	0.5	0.5	0.5	0.5	0.5	0.5	7.6	7.5	7.1	0.4	0.6	1.0	13.3	13.6	13.7
Back Bay-Beacon Hill	1.9	1.9	1.9	0.3	0.4	0.4	0.4	0.4	0.4	0.7	0.6	0.6	9.5	9.4	8.9	3.4	3.7	4.3	16.2	16.4	16.6
South End	1.5	1.5	1.5	0.6	0.6	0.7	0.8	0.9	0.9	1.4	1.4	1.3	8.5	8.4	8.0	1.3	1.6	2.1	14.1	14.4	14.5
Fenway-Kenmore	1.4	1.4	1.4	1.2	1.3	1.4	0.4	0.4	0.4	0.8	0.8	0.8	6.8	6.7	6.4	2.7	2.9	3.2	13.3	13.5	13.7
Mixed																					
Allston-Brighton	4.7	4.8	4.8	2.3	2.4	2.7	1.0	1.0	1.0	1.2	1.2	1.2	13.7	13.6	12.9	7.9	8.5	9.2	31.0	31.5	31.8
Jamaica Plain	2.2	2.2	2.2	2.4	2.5	2.8	0.7	0.7	0.7	3.3	3.2	3.2	5.8	5.8	5.5	2.4	2.7	2.9	16.8	17.1	17.3
Minority																					
Roxbury	3.4	3.5	3.5	4.4	4.6	5.1	2.4	2.4	2.4	5.4	5.3	5.2	5.6	5.6	5.3	0.2	0.5	0.5	21.4	21.8	22.0
North Dorchester	1.3	1.3	1.3	2.3	2.4	2.7	1.6	1.6	1.6	1.3	1.2	1.2	2.4	2.3	2.2	0.7	0.8	0.7	9.5	9.7	9.8
Suburban																					
South Dorchester	3.9	4.0	4.0	4.2	4.3	4.9	3.6	3.7	3.7	3.4	3.3	3.3	5.0	4.9	4.7	0.3	0.5	0.5	20.4	20.8	21.0
Mattapan	1.6	1.6	1.6	3.3	3.4	3.8	1.9	1.9	1.9	3.1	3.1	3.0	2.1	2.1	2.0	0.1	0.3	0.1	12.1	12.3	12.4
Roslindale	3.3	3.3	3.3	3.2	3.3	3.7	1.2	1.2	1.2	0.9	0.8	0.8	2.7	2.7	2.5	0.3	0.4	0.2	11.5	11.7	11.8
West Roxbury	4.0	4.1	4.1	2.2	2.3	2.6	1.8	1.9	1.9	0.8	0.8	0.8	2.7	2.7	2.6	0.5	0.6	0.5	12.1	12.3	12.4
Hyde Park	3.6	3.7	3.7	3.3	3.4	3.8	1.0	1.0	1.0	0.7	0.7	0.7	2.0	2.0	1.9	0.3	0.4	0.1	10.9	11.1	11.2
Harbor Island																					
Ethnic	7.3	7.4	7.4	5.0	5.1	5.8	3.6	3.7	3.7	4.1	4.0	4.0	13.4	13.2	12.6	1.0	1.5	1.9	34.4	35.0	35.4
Core	8.0	8.1	8.1	3.4	3.5	3.9	2.2	2.2	2.2	3.4	3.3	3.3	32.4	32.0	30.6	7.7	8.8	10.5	56.9	57.9	58.6
Mixed	6.9	7.0	7.0	4.7	4.9	5.5	1.7	1.8	1.8	4.5	4.4	4.3	19.6	19.3	18.5	10.3	11.2	12.0	47.8	48.6	49.1
Minority	4.7	4.7	4.7	6.8	7.0	7.9	4.0	4.0	4.0	6.7	6.5	6.4	8.0	7.9	7.5	0.9	1.3	1.2	31.0	31.5	31.8
Suburban	16.5	16.7	16.7	16.2	16.7	18.9	9.5	9.6	9.7	8.9	8.7	8.5	14.5	14.3	13.7	1.5	2.1	1.5	67.0	68.2	68.9

Source: U.S. Census of Population and Housing, 1980.
Housing and household projections based on 1985 Household Survey and Goetze and Bourguignon.

Table 9: Distribution of Households by Type in 2000, Low, Middle and High Series
(numbers of households in thousands)

Area	Married Couple without children under 18 yrs			Married Couple with children under 18 yrs			Other Family without children under 18 yrs			Single Parent with children under 18 yrs			Live Alone			Living with Roommate			Total Number of Households		
	Low	Mid	High	Low	Mid	High	Low	Mid	High	Low	Mid	High	Low	Mid	High	Low	Mid	High	Low	Mid	High
City Total	45.8	47.4	48.0	37.5	40.3	45.6	22.6	23.6	23.5	30.1	30.6	28.4	93.1	94.3	91.2	22.1	25.2	31.5	251.6	261.9	268.1
Ethnic																					
East Boston	2.7	2.8	2.8	2.3	2.5	2.8	2.2	2.3	2.3	1.5	1.5	1.4	6.2	6.3	6.1	0.0	0.1	0.4	14.9	15.5	15.9
Charlestown	1.7	1.8	1.8	1.0	1.1	1.3	0.5	0.5	0.5	0.6	0.6	0.5	2.9	2.9	2.8	0.5	0.6	0.7	7.2	7.5	7.7
South Boston	3.3	3.5	3.5	1.8	2.0	2.2	1.2	1.3	1.3	2.5	2.5	2.4	5.1	5.2	5.0	0.5	0.6	1.0	14.4	15.0	15.4
Core																					
Central	3.4	3.5	3.5	1.2	1.3	1.5	0.5	0.6	0.5	0.6	0.6	0.6	8.0	8.1	7.9	0.4	0.6	1.1	14.2	14.7	15.1
Back Bay-Beacon Hill	2.0	2.1	2.1	0.4	0.4	0.4	0.4	0.4	0.4	0.7	0.7	0.7	10.0	10.2	9.8	3.5	4.0	4.7	17.1	17.8	18.3
South End	1.6	1.6	1.6	0.7	0.7	0.8	0.9	0.9	0.9	1.5	1.5	1.5	9.0	9.2	8.8	1.3	1.6	2.3	15.0	15.6	16.0
Fenway-Kenmore	1.5	1.5	1.6	1.3	1.4	1.5	0.5	0.5	0.5	0.9	0.9	0.8	7.2	7.3	7.1	2.8	3.1	3.6	14.1	14.7	15.1
Mixed																					
Allston-Brighton	5.0	5.2	5.3	2.4	2.6	3.0	1.1	1.1	1.1	1.3	1.4	1.3	14.5	14.7	14.2	8.4	9.1	10.1	32.9	34.2	35.0
Jamaica Plain	2.3	2.4	2.4	2.5	2.7	3.0	0.8	0.8	0.8	3.6	3.6	3.5	6.2	6.3	6.1	2.5	2.7	3.2	17.9	18.6	19.0
Minority																					
Roxbury	3.6	3.8	3.8	4.6	4.9	5.6	2.6	2.7	2.7	5.9	6.0	5.7	6.0	6.0	5.8	0.1	0.2	0.6	22.7	23.6	24.2
North Dorchester	1.3	1.4	1.4	2.4	2.6	3.0	1.7	1.8	1.8	1.4	1.4	1.3	2.5	2.5	2.5	0.7	0.8	0.9	10.1	10.5	10.8
Suburban																					
South Dorchester	4.2	4.3	4.4	4.4	4.7	5.3	3.9	4.1	4.1	3.7	3.8	3.6	5.3	5.3	5.2	0.2	0.3	0.6	21.7	22.6	23.1
Mattapan	1.7	1.7	1.8	3.4	3.7	4.1	2.0	2.1	2.1	3.4	3.5	3.3	2.2	2.2	2.2	0.1	0.1	0.2	12.8	13.3	13.6
Roslindale	3.5	3.6	3.7	3.3	3.6	4.1	1.3	1.3	1.3	0.9	1.0	0.9	2.9	2.9	2.8	0.3	0.3	0.3	12.2	12.7	13.0
West Roxbury	4.3	4.4	4.5	2.3	2.5	2.8	2.0	2.1	2.1	0.9	0.9	0.9	2.9	2.9	2.8	0.5	0.5	0.6	12.8	13.3	13.7
Hyde Park	3.9	4.0	4.0	3.4	3.7	4.2	1.0	1.1	1.1	0.8	0.8	0.7	2.1	2.2	2.1	0.4	0.3	0.2	11.6	12.1	12.4
Harbor Islands																					
Ethnic	7.8	8.0	8.1	5.2	5.6	6.3	3.9	4.1	4.1	4.5	4.6	4.4	14.2	14.4	13.9	1.0	1.4	2.1	36.5	38.0	38.9
Core	8.5	8.8	8.9	3.5	3.8	4.3	2.3	2.4	2.4	3.7	3.8	3.6	34.4	34.8	33.6	8.1	9.4	11.6	60.4	62.9	64.4
Mixed	7.4	7.6	7.7	4.9	5.3	6.0	1.9	2.0	2.0	4.9	5.0	4.8	20.7	21.0	20.3	10.9	11.9	13.3	50.7	52.8	54.0
Minority	5.0	5.1	5.2	7.0	7.6	8.5	4.3	4.5	4.5	7.3	7.4	7.1	8.5	8.6	8.3	0.8	1.0	1.4	32.8	34.2	35.0
Suburban	17.5	18.1	18.3	16.9	18.2	20.5	10.3	10.7	10.6	9.7	9.9	9.4	15.4	15.6	15.0	1.4	1.7	1.9	71.1	74.0	75.8

Source: U.S. Census of Population and Housing, 1980.
Housing and household projections based on 1985 Household Survey and Goetze and Bourguignon.

Table 10: Distribution of Household Population by Household Type in 1990, Low, Middle and High Series
(numbers of persons in thousands)

	Married Couple without children under 18 yrs			Married Couple with children under 18 yrs			Other Family without children under 18 yrs			Single Parent with children under 18 yrs			Live Alone			Living with Roommate			Total Household Population		
Area	Low	Mid	High	Low	Mid	High	Low	Mid	High	Low	Mid	High	Low	Mid	High	Low	Mid	High	Low	Mid	High
City Total	103.6	104.8	110.3	151.4	156.0	184.2	54.8	55.8	56.1	87.8	88.9	89.2	87.7	86.8	82.9	51.4	60.9	66.9	537.4	553.6	590.4
Ethnic																					
East Boston	5.6	5.7	6.0	9.6	9.9	11.7	4.7	4.8	4.8	4.0	4.1	4.1	5.8	5.8	5.5	0.1	0.5	0.8	29.9	30.7	32.9
Charlestown	3.5	3.6	3.7	4.4	4.5	5.3	1.1	1.1	1.1	1.5	1.5	1.5	2.7	2.7	2.6	1.0	1.2	1.4	14.2	14.7	15.7
South Boston	6.9	7.0	7.4	7.7	7.9	9.3	2.7	2.7	2.7	6.6	6.7	6.7	4.8	4.8	4.5	1.1	1.5	1.9	29.7	30.6	32.6
Core																					
Central	6.8	6.9	7.3	4.4	4.6	5.4	1.2	1.2	1.2	1.7	1.7	1.7	7.6	7.5	7.1	0.9	1.5	2.3	22.6	23.3	25.0
Back Bay-Beacon Hill	4.1	4.2	4.4	1.3	1.3	1.6	0.9	1.0	1.0	2.1	2.1	2.1	9.5	9.4	8.9	8.0	9.0	10.5	25.8	26.8	28.4
South End	3.2	3.2	3.4	2.3	2.4	2.8	2.0	2.0	2.0	4.3	4.4	4.4	8.5	8.4	8.0	3.1	3.8	5.1	23.4	24.3	25.7
Fenway-Kenmore	3.0	3.0	3.2	4.5	4.7	5.5	1.0	1.1	1.1	2.4	2.4	2.5	6.8	6.7	6.4	6.3	7.0	7.9	24.1	25.0	26.6
Mixed																					
Allston-Brighton	11.4	11.5	12.1	10.9	11.3	13.3	2.6	2.7	2.7	4.0	4.1	4.1	13.7	13.6	12.9	19.1	20.7	22.7	61.7	63.8	67.8
Jamaica Plain	5.3	5.3	5.6	11.2	11.5	13.6	1.9	1.9	1.9	10.7	10.9	10.9	5.8	5.8	5.5	5.7	6.5	7.1	40.6	41.9	44.7
Minority																					
Roxbury	7.5	7.5	7.9	18.4	19.0	22.4	6.3	6.4	6.4	16.2	16.4	16.5	5.6	5.6	5.3	0.5	1.5	1.4	54.5	56.4	60.0
North Dorchester	2.8	2.8	2.9	9.7	10.0	11.9	4.2	4.3	4.3	3.8	3.8	3.9	2.4	2.3	2.2	2.1	2.4	2.2	25.0	25.8	27.4
Suburban																					
South Dorchester	10.4	10.6	11.1	17.4	17.9	21.2	10.0	10.2	10.2	11.6	11.7	11.8	5.0	4.9	4.7	0.7	1.3	1.1	55.1	56.6	60.1
Mattapan	4.2	4.3	4.5	13.5	13.9	16.4	5.1	5.2	5.2	10.7	10.9	10.9	2.1	2.1	2.0	0.3	0.7	0.3	36.0	36.9	39.3
Roslindale	8.7	8.8	9.3	13.2	13.6	16.1	3.3	3.3	3.3	3.0	3.0	3.0	2.7	2.7	2.5	0.7	0.9	0.5	31.5	32.3	34.7
West Roxbury	10.6	10.7	11.3	9.2	9.5	11.2	5.1	5.2	5.2	2.8	2.8	2.8	2.7	2.7	2.6	1.1	1.4	1.3	31.5	32.3	34.4
Hyde Park	9.6	9.7	10.2	13.6	14.0	16.6	2.7	2.7	2.7	2.4	2.4	2.4	2.0	2.0	1.9	0.7	0.9	0.4	31.0	31.8	34.2
Harbor Islands																					
Ethnic	16.0	16.2	17.1	21.7	22.3	26.4	8.5	8.6	8.7	12.2	12.3	12.4	13.4	13.2	12.6	2.1	3.3	4.1	73.9	76.0	81.3
Core	17.1	17.3	18.2	12.6	12.9	15.3	5.1	5.2	5.3	10.5	10.6	10.6	32.4	32.0	30.6	18.3	21.3	25.8	95.9	99.4	105.8
Mixed	16.6	16.8	17.7	22.1	22.8	26.9	4.5	4.6	4.6	14.7	14.9	15.0	19.6	19.3	18.5	24.8	27.3	29.8	102.3	105.7	112.5
Minority	10.2	10.3	10.9	28.2	29.0	34.3	10.5	10.7	10.8	20.0	20.3	20.3	8.0	7.9	7.5	2.6	3.9	3.6	79.6	82.1	87.4
Suburban	43.6	44.1	46.4	66.9	68.9	81.4	26.2	26.6	26.8	30.5	30.8	30.9	14.5	14.3	13.7	3.6	5.1	3.6	185.2	189.9	202.8

Source: U.S. Census of Population and Housing, 1980.
Housing and household projections based on 1985 Household Survey and Goetze and Bourguignon.

Table 11: Distribution of Household Population by Household Type in 2000, Low, Middle and High Series
(numbers of persons in thousands)

	Married Couple without children under 18 yrs			Married Couple with children under 18 yrs			Other Family without children under 18 yrs			Single Parent with children under 18 yrs			Live Alone			Living with Roommate			Total Household Population		
Area	Low	Mid	High	Low	Mid	High	Low	Mid	High	Low	Mid	High	Low	Mid	High	Low	Mid	High	Low	Mid	High
City Total	105.3	109.0	121.2	153.7	169.4	200.2	59.5	61.9	61.7	90.1	97.9	98.1	93.1	94.3	91.2	53.8	61.4	74.9	556.4	594.7	648.2
Ethnic																					
East Boston	5.7	5.9	6.6	9.8	10.8	12.7	5.1	5.3	5.3	4.1	4.5	4.5	6.2	6.3	6.1	0.0	0.3	1.0	30.9	33.1	36.1
Charlestown	3.6	3.7	4.1	4.5	4.9	5.8	1.2	1.2	1.2	1.6	1.7	1.7	2.9	2.9	2.8	1.1	1.2	1.6	14.7	15.7	17.3
South Boston	7.0	7.3	8.1	7.8	8.6	10.1	2.9	3.0	3.0	6.8	7.4	7.4	5.1	5.2	5.0	1.0	1.4	2.2	30.6	32.8	35.8
Core																					
Central	6.9	7.2	8.0	4.5	5.0	5.9	1.3	1.3	1.3	1.7	1.9	1.9	8.0	8.1	7.9	1.0	1.5	2.6	23.4	25.0	27.5
Back Bay-Beacon Hill	4.2	4.3	4.8	1.3	1.4	1.7	1.0	1.1	1.1	2.1	2.3	2.3	10.0	10.2	9.8	8.6	9.6	11.6	27.2	28.9	31.3
South End	3.2	3.3	3.7	2.4	2.6	3.1	2.2	2.3	2.2	4.4	4.8	4.8	9.0	9.2	8.8	3.2	4.0	5.6	24.4	26.1	28.3
Fenway-Kenmore	3.1	3.2	3.5	4.6	5.1	6.0	1.1	1.2	1.2	2.5	2.7	2.7	7.2	7.3	7.1	6.8	7.5	8.7	25.3	26.9	29.2
Mixed																					
Allston-Brighton	11.6	12.0	13.3	11.1	12.2	14.5	2.9	3.0	3.0	4.1	4.5	4.5	14.5	14.7	14.2	20.5	22.3	25.1	64.7	68.7	74.5
Jamaica Plain	5.4	5.5	6.2	11.3	12.5	14.8	2.1	2.1	2.1	11.0	12.0	12.0	6.2	6.3	6.1	6.0	6.7	7.9	41.9	45.1	49.0
Minority																					
Roxbury	7.6	7.8	8.7	18.7	20.6	24.4	6.8	7.1	7.1	16.6	18.1	18.1	6.0	6.0	5.8	0.1	0.6	1.8	55.9	60.3	65.9
North Dorchester	2.8	2.9	3.2	9.9	10.9	12.9	4.6	4.8	4.8	3.9	4.2	4.2	2.5	2.5	2.5	2.2	2.4	2.6	25.9	27.7	30.1
Suburban																					
South Dorchester	10.6	11.0	12.2	17.7	19.5	23.0	10.9	11.3	11.3	11.9	12.9	13.0	5.3	5.3	5.2	0.5	0.8	1.4	56.8	60.8	66.0
Mattapan	4.3	4.4	4.9	13.7	15.1	17.8	5.6	5.8	5.8	11.0	12.0	12.0	2.2	2.2	2.2	0.2	0.2	0.4	36.9	39.7	43.1
Roslindale	8.9	9.2	10.2	13.4	14.8	17.5	3.5	3.7	3.7	3.0	3.3	3.3	2.9	2.9	2.8	0.8	0.8	0.7	32.5	34.6	38.1
West Roxbury	10.8	11.2	12.4	9.3	10.3	12.1	5.5	5.8	5.7	2.8	3.1	3.1	2.9	2.9	2.8	1.1	1.3	1.5	32.5	34.5	37.8
Hyde Park	9.8	10.1	11.3	13.8	15.2	18.0	2.9	3.0	3.0	2.4	2.7	2.7	2.1	2.2	2.1	0.8	0.8	0.5	31.9	34.0	37.6
Harbor Islands																					
Ethnic	16.3	16.9	18.8	22.0	24.2	28.7	9.2	9.6	9.5	12.5	13.6	13.6	14.2	14.4	13.9	2.1	2.9	4.7	76.3	81.6	89.2
Core	17.4	18.0	20.0	12.8	14.1	16.6	5.6	5.8	5.8	10.7	11.7	11.7	34.4	34.8	33.6	19.5	22.6	28.5	100.3	106.9	116.2
Mixed	16.9	17.5	19.5	22.4	24.7	29.2	4.9	5.1	5.1	15.1	16.4	16.5	20.7	21.0	20.3	26.5	29.0	33.0	106.6	113.8	123.5
Minority	10.4	10.7	11.9	28.6	31.5	37.3	11.4	11.9	11.8	20.5	22.3	22.4	8.5	8.6	8.3	2.3	3.0	4.3	81.8	88.0	96.0
Suburban	44.3	45.9	51.0	67.9	74.8	88.5	28.4	29.5	29.4	31.2	33.9	34.0	15.4	15.6	15.0	3.4	4.0	4.5	190.7	203.7	222.5

Source: U.S. Census of Population and Housing, 1980.
Housing and household projections based on 1985 Household Survey and Goetze and Bourguignon.

Tables 4 and 6 show the growth in total housing units and in households for 1990 and 2000 respectively, and reveal the change in average household size as well. Tables 5 and 7 document the resulting household populations and, with the addition of the allocated group quarters population, the total population for each neighborhood and sub-area.

Tables 8 and 9 show the projected distribution of the number of households by type to neighborhoods and areas in 1990 and 2000, respectively. The three series are laid out side by side so that the impact of the differences in the citywide numbers for household type can be seen for each neighborhood. For instance, in the year 2000, Allston-Brighton might have a range of between 8,400 and 10,100 roommate households.

Similarly, Tables 10 and 11 show the number of persons projected to live in each household type by neighborhood and sub-area for 1990 and 2000. Again the impact of the citywide total for each series on the neighborhood numbers by type is evident. For instance, in Allston-Brighton in the year 2000, about half of the 9,800 difference in population totals between the High and Low Series is due to differences in the numbers of those living in roommate households, 20,500 in the Low Series and 25,100 in the High Series. Those living with roommates will comprise 32 percent of the Low Series' household population and 34 percent of the High Series.

UNDERLYING ASSUMPTIONS

The three series of household projections are based on different assumptions regarding the future of Boston. The High Series assumes a booming economy in Boston which will continue to create high demand for housing. The number of units will have grown by 24,000 or nearly 10 percent during the 1980s and increase by another 36,000 or close to 14 percent in the 1990s. The mix of households by type will remain similar to that of 1985 and the high cost of housing will keep household size from falling further. The group quarters population is set at 49,500, the number estimated by the State Census Commission in 1985.

The Middle Series is based on the assumption of a cyclical topping out in the growth of Boston's economy with eased demand for housing and a slower, steadier pace of residential construction. The housing inventory will have increased by about 9 percent in the 1980s and continue to grow at this rate in the 1990s. Housing costs may ease somewhat providing the opportunity for more persons to live alone.

The Low Series is premised on a slowdown in the Boston area economy which will brake both population growth and housing starts. Lower housing demand will lead to higher vacancy rates and a tendency toward smaller households.

GENERAL METHODOLOGY AND DEFINITIONS

The methodology used in this study to develop these household projections is a variation on the "housing unit method" which uses the projected number of housing units and an estimate of average household size to project the household population. The total population is obtained by adding a projection of the group quarters population to the household population. The variations are several. Given that housing units and population had been recently projected by the B.R.A., the project involved finding plausible vacancy rates and shifts in the distribution of household types to accommodate the previously projected population. These numbers were then analyzed for their implications regarding household size.

The method is unique in that it relates household population and housing units through a more detailed set of links than simply the gross vacancy rate and household size, which are usually used. The projected households were estimated from housing units by applying projections of the gross vacancy rate for Boston. Then the households were distributed across six household types, each with its own average household size, from which the household population was estimated. This ensures that the fitting of housing and population projections is done through household projections that follow reasonable trends with regard to household type and size.

Use of this unique method was possible because of data available from the 1985 Household Survey of Boston undertaken by the Boston Redevelopment Authority and the Neighborhood Development and Employment Agency. The survey yielded data on the type amd size of each household.[6] Examination of these data indicated that household type was a more useful predictor of household size, meaning that the variance in household sizes was larger among the six household type categories than it was for a number of other characeristics including race/ethnicity, neighborhood, and housing type.

The 1985 Household Survey classified household into 13 types which were collapsed into the 6 used here. They include

1) MARRIED COUPLE - Married couple with either no own children at home or with youngest child(ren) aged 18 years or older, with or without others

2) MARRIED COUPLE WITH CHILDREN - Married couple with minor children at home, with or without others

3) OTHER FAMILY WITHOUT CHILDREN - Householder with no spouse

---

[6] Such information was not available from the published reports of the 1980 U.S. Census or of the American Housing Survey.

or minor children, but with other relatives including children aged 18 years or older, with or without non-relatives

4) SINGLE PARENT WITH CHILDREN - Householder without spouse with minor children at home, with or without other relatives or non-relatives

5) LIVE ALONE - Householder living alone

6) ROOMMATE - Householder living only with unrelated persons.

In addition, the household classification data were available for the 16 Boston Redevelopment Authority planning districts or neighborhoods. However, the numbers for the neighborhoods were small in some instances and it seemed advisable to group them into five sub-areas of the City on the basis of similar distributions of housing by type, single, 2-4, and 5 or more unit structures. These sub-area data were used in default unless the number of cases in a category and neighborhood was large enough to produce reliable estimates of household size by type or the neighborhood's size and type distribution was so radically different that some adjustments in the use of sub-area data were warranted, usually only in the case of the Allston-Brighton/Jamaica Plain or Mixed sub-area. The adjustment was to average the sub-area and neighborhood household type sizes. The distributions of household types and their sizes by sub-areas from the 1985 Household Survey are reported in Table A-3.

A more detailed description of the methodology is available in Appendix A.

APPENDIX A: DETAILED METHODOLOGY

Model. The projections of households which serve as a link between projections of persons and of housing units involve a number of other linkages. The vacancy or occupancy rates link the number of housing units and households, which are occupied housing units. The households and number of persons living in households are linked by both the distribution of households by type and the average size or number of persons in each household type. The persons living in households is then added to the population living in group quarters to yield the total population. Each of these links is an integral part of the projection process:

Housing units x (1 - Vacancy rate) = Households
Households = (Number of Households by Type)
(Households x Av. HH size) = (Households by Type x Av. HH size by Type) = HH Population
HH Population + Group Quarters Population = Total Population.

The 1985 Household Survey, which was commissioned by the Boston Redevelopment Authority and the Neighborhood Development and Employment Agency, now part of Boston's Department of Public Works, provided invaluable information about the links among these factors.

Initial Work. The project initially created a series of projections for Boston for 1990 and 2000 that related the sensitivity of the number of future households to changes in various factors. First, the impact of changes in the number of housing units was measured, with vacancy and household type distribution remaining constant along with household size. In the High Series, the number of housing units was anticipated to grow from 241,000 in 1980 to 265,050 in 1990 and 301,000 in 2000. In the Middle Series, the number of housing units was projected to reach 263,700 in 1990 and 285,900 in 2000. Secondly, the impact of various gross vacancy rate assumptions was assessed. The vacancy rate was assumed to either remain at the 6.3 percent found in the Household Survey or to rise to 8.0 percent approaching the higher vacancy rates prevalent early in the 1980s. Thirdly, the mix of the six household types was evaluated. For instance, how the change in the proportion of households made up of singles or married couples changed the resulting population. Fourthly, the impact of changes in the persons per household for the various types was examined. The changes in the proportional distribution of households and in the household sizes were assumed to be relatively small compared to those anticipated for the United States as a whole because Boston already has a high proportion of nonfamily households and smaller household size than the nation. Therefore, only small changes in these variables are expected.

The results of the initial statistical runs for the City of Boston are contained in Table A-1. There is a pattern of results that reveals the importance of underlying assumptions shown in Table A-2. The assumptions of high housing and constant household sizes always produced a year 2000 population well in excess of 701,000, the population for the High Series, regardless of the vacancy rate or household mix assumptions. A population of about 700,000 resulted from the model when moderate housing, low vacancy rates, and constant household size were assumed. Populations of between 680,000 and 695,000 were projected when the assumption of high housing was coupled with falling household sizes or when moderate housing production was assumed along with constant household sizes. The assumption of moderate housing and falling household sizes produced a population close to 660,000 for 2000 when coupled with low vacancy rates and of about 650,000 when coupled with the assumption of higher vacancy rates. In none of these initial runs did the population projected approach the 645,000 of the Middle Series projections or the 598,000 of the Low Series population projections for the year 2000 by O'Brien and Oriola. Therefore, some of the assumptions were revised to enable a better fit with these two series.

<u>Final Assumptions</u>. The high housing series had been based on the assumption of an acceleration in the pace of housing construction from the 1980s to the 1990s. The moderate housing series assumed a relatively constant increase in housing in the two decades.

A third housing series was created for the Low Series based on smaller increases in housing during the 1980s and slower growth in the 1990s than has occurred during the 1980s. The smaller increases in housing during the 1980s might result from slightly different methods of counting housing units. Residential units extant in 1980 had continued to be counted as being on the housing rolls under the High and Middle assumptions unless there was specific evidence that they had been demolished or abandoned. However, some of these units may have been lost through conversion to nonresidential uses. Conversion to university-owned housing might have resulted in occupants already having been estimated as part of the group quarters population currently. An additional number of units which have been added illegally to existing housing stock and are included in the High and Middle housing projections might not be verifiable through any ordinary counting procedure, such as a U.S. Census count of households. In addition to these small differences that might occur because of counting procedures, it was assumed for the Low Series that housing starts would drop sharply as developers assessed the profitability of construction in the less favorable current climate, then resume at a slower pace after 1990.

The vacancy rates were revised to be somewhat higher than that found in the 1985 Household Survey, 6.3 percent, for which the housing base may have excluded those vacant units of public housing which the Boston Housing Authority was not maintaining on

its active rolls at that time. Addition of these vacant units would have increased the vacancy rate by close to 1 percent for all units in the City. While there may not yet be enough affordable housing in the City of Boston, the pressure on the housing market has eased slightly in the several years following 1985 as evidenced by slower increases in housing costs.

The proportional distribution of households by type was revised somewhat and to differing degrees for the three series to include somewhat more singles and somewhat fewer families. This was done because surveys are known to have a slight bias toward multi-person households, compared to the U.S. Census for instance, because occupants are more likely to be found at home. Moreover, while it appears that the change in household composition from family to non-family has largely abated, there will still be some residual tendency toward more persons living alone as is true throughout the nation.

The average size of the household types was varied for the three series. The 1985 Household Survey average sizes were used for the High Series. For the Middle and Low Series, the household sizes were assumed to be slightly smaller for married couples without children, married couples with minor children, single parents with minor children, and roommate households.

The group quarters population in Boston is believed to have increased, primarily due to growth in the number of college and university students. However, the extent of this growth is uncertain.

Results. The results of these assumptions were three series of household projections, High, Middle, and Low, which were each based on different numbers of projected housing units and population, vacancy rates, distributions of household types, household sizes by types, and numbers of group quarters population. Shown in Tables 1 through 3, they provide a wide range of options for the user.

Table A-1. Preliminary Assumptions and Resulting Population Projections for Boston, 1990 and 2000 (in thousands)

Housing Units	Occupancy Rate	Household Distribution	Persons per Household	Total Population 1990	2000
High	High	Constant	Constant	653.6	735.5
High	High	Constant	Variable	635.4	694.3
High	High	Variable	Constant	654.8	738.2
High	High	Variable	Variable	636.4	695.7
High	Low	Constant	Constant	642.6	723.1
High	Low	Constant	Variable	624.8	682.6
High	Low	Variable	Constant	643.8	725.7
High	Low	Variable	Variable	625.7	684.0
Middle	High	Constant	Constant	648.2	701.1
Middle	High	Constant	Variable	630.2	662.0
Middle	High	Variable	Constant	649.5	703.7
Middle	High	Variable	Variable	631.2	663.3
Middle	Low	Constant	Constant	637.4	689.3
Middle	Low	Constant	Variable	619.7	650.9
Middle	Low	Variable	Constant	638.6	691.8
Middle	Low	Variable	Variable	620.6	652.2

Table A-2. Specific Assumptions for Preliminary Population Projections for Boston, 1990 and 2000

Housing Units	1990	2000
High	265,050	301,000
Middle	262,700	285,900

Occupancy Rate = (1 - Vacancy Rate)
Occupancy Rate High 0.937
Occupancy Rate Low 0.920

Household Type Distribution (in percent)	Constant	Variable	
		1990	2000
Total	100.0	100.0	100.0
Married Couple w/out Children	17.9	17.5	16.8
Married Couple with Children	17.4	17.0	16.5
Other Family w/out Children	8.8	9.2	10.0
Single Parent with Children	10.1	11.5	13.0
Live Alone	33.2	33.2	33.2
Roommate	12.6	11.6	10.5
Average Persons per Household			
All Households	2.44	2.36	2.29
Married Couple w/out Children	2.50	2.40	2.30
Married Couple with Children	4.40	4.20	4.00
Other Family w/out Children	2.60	2.60	2.60
Single Parent with Children	3.40	3.20	3.00
Live Alone	1.00	1.00	1.00
Roommate	2.50	2.50	2.50

Table A-3. Distribution of Households by Type in Percent and Average Number of Persons per Household for Boston and Sub-areas, 1985

	Household Type and Average Persons per Household						
Area	Married Couple without Kids	Married Couple with Kids	Other Family without Kids	Single Parent with Kids	Live Alone	Live with Roommate	Total
	Percent Distribution						
Boston	17.9	17.4	8.8	10.1	33.2	12.6	100.0
Ethnic	20.8	16.4	10.5	10.5	35.7	6.1	100.0
Core	13.6	6.6	3.7	5.2	51.7	19.2	100.0
Mixed	14.2	11.2	3.5	7.1	37.5	26.5	100.0
Minority	14.6	24.6	12.6	18.9	23.5	5.7	100.0
Suburban	24.0	27.3	13.8	11.6	19.6	3.6	100.0
	Average Persons per Household						
Boston	2.5	4.4	2.6	3.4	1.0	2.5	2.4
Ethnic	2.3	4.6	2.3	3.1	1.0	2.2	2.3
Core	2.3	3.9	2.4	3.3	1.0	2.5	1.8
Mixed	2.5	4.9	2.6	3.5	1.0	2.5	2.3
Minority	2.3	4.4	2.7	3.2	1.0	3.0	2.7
Suburban	2.8	4.3	2.8	3.6	1.0	2.4	2.9

Source: Boston Redevelopment Authority and Neighborhood Development and Employment Agency Household Survey, conducted by the Center for Survey Research, UMASS-Boston, 1985.